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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/809,556	03/25/2004	Steven L. Stice	60141.0003USC4	7952

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EXAMINER	
CROUCH, DEBORAH	
ART UNIT	**PAPER NUMBER**
1632	

DATE MAILED: 05/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/809,556	STICE ET AL.	
	Examiner	Art Unit	
	Deborah Crouch, Ph.D.	1632	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 March 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on *25 March 2004* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *3/25/04,2/11/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

The preliminary amendment filed March 25, 2004 has been entered. Claim 1 is pending.

Drawings 1, 4 and 5 are objected to under 37 CFR 1.83(a) because they fail to show staining as described in the specification. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101, which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope.

The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

Claim 1 provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of claim 1 of copending Application No. 10/818,486. This is a provisional double patenting rejection since the conflicting claims have not in fact been patented.

Claim 1 is provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of claim 1 of copending Application No. 10/260,020. This is a provisional double patenting rejection since the conflicting claims have not in fact been patented.

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claim 1 is provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-55 of copending Application No. 10/260,020. Note claim 1 is included because of claims depending from it. Although the conflicting claims are not identical, they are not patentably distinct from each other because present claim 1 is generic to claims 1-55 of '020.

Present claim 1 is drawn to a method of treating a patient in need of cell or tissue transplantation comprising administering to or transplanting into said patient at least one cell or tissue obtained from a cloned ungulate animal or embryo.

Claims 1-55 are drawn to methods of treating a patient in need of cell or tissue transplantation comprising administering to or transplanting into said patient at least one cell or tissue obtained from a cloned ungulate animal or embryo, where the patient is a mammal or a human, where the tissue is dopaminergic, where the diseases are for Parkinson's, Huntington's, epilepsy, Alzheimer's, ALS, spinal cord injuries, multiple sclerosis, muscular dystrophy, diabetes, liver diseases, heart disease, cartilage replacement, burns, vascular diseases, urinary tract diseases, as well as for the treatment of immune defects, bone marrow transplantation or cancer and where the tissue is ungulate, genetically modified or from a fetus.

Each of the terms of present claim 1 is defined in the present specification to contain each of the limitations of claims 1-55 of '020. Thus, at the time of the present invention, it would have been obvious to the ordinary artisan to reach the present invention given claims 1-55 of '020.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 1 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter, which was not

described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claim 1 is drawn to a method of treating a patient in need of cell or tissue transplantation comprising administering to or transplanting into said patient at least one cell or tissue obtained from a cloned ungulate animal or embryo.

The specification discloses the use of tissues derived from bovine NT units, fetuses or offspring for transplantation therapy, such as therapies for Parkinson's, Huntington's, epilepsy, Alzheimer's, ALS, spinal cord injuries, multiple sclerosis, muscular dystrophy, diabetes, liver diseases, heart disease, cartilage replacement, burns, vascular diseases, urinary tract diseases, as well as for the treatment of immune defects, bone marrow transplantation or cancer. (Specification, page 34, line 18 to page 35, line 7). However, at the time of filing, the skilled artisan would not have regarded these diseases as being enabled by the claimed method.

The specification provides no guidance on the treatment of any of Parkinson's, Huntington's, epilepsy, Alzheimer's, ALS, spinal cord injuries, multiple sclerosis, muscular dystrophy, diabetes, liver diseases, heart disease, cartilage replacement, burns, vascular diseases, urinary tract diseases, as well as for the treatment of immune defects, bone marrow transplantation or cancer by transplantation of ungulate cells or tissue in to a recipient. The specification does not provide guidance as to which such ungulate cell or tissue transplantation, which ungulate cells or tissues should be transplanted or a site for transplantation in the recipient could treat diseases. All the specification discloses is a laundry list of diseases without any guidance for a treatment affected by transplantation of ungulate cells or tissues.

There are many factors to be considered when determining whether there is sufficient evidence to support a determination that a disclosure does not satisfy the

enablement requirement and whether any necessary experimentation is "undue." These factors include, but are not limited to: (A) the breadth of the claims; (B) the nature of the invention; (C) the state of the prior art; (D) the level of one of ordinary skill; (E) the level of predictability in the art; (F) the amount of direction provided by the inventor; (G) the existence of working examples; and (H) the quantity of experimentation needed to make or use the invention based on the content of the disclosure. (In re Wands, 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988).)

The specification provides no guidance on the treatment of any of Parkinson's, Huntington's, epilepsy, Alzheimer's, ALS, spinal cord injuries, multiple sclerosis, muscular dystrophy, diabetes, liver diseases, heart disease, cartilage replacement, burns, vascular diseases, urinary tract diseases, as well as for the treatment of immune defects, bone marrow transplantation or cancer by transplantation of ungulate cells or tissue in to a recipient. The specification does not provide guidance, either as working examples, direction by applicant, or quantity of experimentation needed, as to which such ungulate cell or tissue transplantation, which ungulate cells or tissues should be transplanted or a site for transplantation in the recipient could treat diseases for the breath of the claims. All the specification discloses is a laundry list of diseases without any guidance for a treatment affected by transplantation of ungulate cells or tissues. The amount of guidance or direction needed to enable the invention is inversely related to the amount of knowledge in the state of the art as well as the predictability in the art. In re Fisher, 427 F.2d 833, 839, 166 USPQ 18, 24 (CCPA 1970). The "amount of guidance or direction" refers to that information in the application, as originally filed, that teaches exactly how to make or use the invention. The more that is known in the prior art about the nature of the invention, how to make, and how to use the invention, and the more predictable the art is, the less information needs to be explicitly stated in the specification. In contrast, if little is known in the prior art about the

nature of the invention and the art is unpredictable, the specification would need more detail as to how to make and use the invention in order to be enabling. (See Chiron Corp. v. Genentech Inc., 363 F.3d 1247, 1254, 70 USPQ2d 1321, 1326 (Fed. Cir. 2004).) Thus, as the present specification fails to provide any guidance for the implementation of the claimed invention, and xenogeneic (porcine to non-porcine species) is a new technology that was not enabled by the art the time of filing, the claimed invention lacks enablement.

The method of treating a patient claimed encompasses cross-species implantation, a methodology that was unpredictable at the time of filing. Lindvall (Lindvall (1999) states pig dopaminergic neurons might be useful for the treatment of Parkinson's disease but increases need to be achieved first in the yield of surviving engrafted cells and the volume of innervation in the host striatum have to be markedly increased (page 638, col. 2, #2, lines 13-24). Larsson discloses that of 12 Parkinson's patients, 12 Huntington's patients, three focal epilepsy patients and one stroke patient were grafted with porcine embryonic neural tissue (Larsson, page 250, col. 2, parag. 3, lines 1-3). At 2 years following transplantation, none of the patients had survival grafts, and only 2 Parkinson's patients have any symptom improvement (Larsson, page 250, col. 2, parag. 3, line 8 to page 251, line 3). Larsson states rejection was the likely cause of graft loss (Larsson, page 251, lines 4-5). These negative results are seen even though pig embryonic neural tissue when implanted into immunosuppressed Parkinson's rats restores motor function. Larsson states while the brain is immunoprivileged, it is still subject to rejection, although at a slower rate that the rest of the human body. Larsson summarizes in stating xenograft of neural tissues may constitute a future replacement for human neural tissue, but that tissue survival must be accomplished without extensive host immunosuppressive treatment (Larsson, page 254, col. 2, parag. 2, lines 5-8). Lanza comments that accommodation, or xenograft survival, had not be reliably achieved in animals (Lanza, page 56, col. 1, parag. 3, line 1 to col. 2,

line 3). Lanza further states that once hyperacute rejection is overcome, xenografts would be rejected by more delayed rejections, but the methodology to suppress such rejections is cytotoxic and conductive to infections (Lanza, page 56, col. 2, parag. 2, lines 1-9). Immunologic tolerance, where the body accepts a transplant, was elusive at the time of filing, although ideas, such as production of a chimeric immune system in the recipient, were known (Lanza, page 56, col. 3, parag. 1 and 2). Lanza also points to other issues with pig tissue transplantation. In addition to rejection issues, there is the issue of organ function. Liver, in particular, Lanza states would not be capable of performing all the functions of a human liver (Lanza, page 59, col. 1, parag. 3, lines 11-14). Mandel brings up the notation that cells or small tissues, such as pancreatic islet grafts, do not have the same rejection as larger, vascularized organs. Since small tissues and cells are not vascularized, they do not have endothelial cells, which are the site of hyperacute rejection (Mandel, page 155, col. 1, lines 15-17). However, according to Mandel, xenografts of cells and tissues are nonetheless acutely rejection by a T-cell dependent mechanism unclear at the time of filing (Mandel, page 155, lines 17-19). Immunosuppression therapies for allograft rejection are not sufficient for the prevention of xenograft rejection (Mandel, page 155, lines 17-19). When pig pancreatic xenografts were implanted under the kidney capsule of monkey, an immunoprivileged site as the brain, the xenografts were rejected by day 7 after transplantation (Mandel, page 157, col. 2, parag. 2, lines 7-10). Even when xenografts were placed in immunoisolation fibers, rejection occurred (Mandel, page 158, col. 1, parag. 2, lines 1-4). Thus, the art at the time of filing, recognized that rejection of pig cells, tissues and organs was unpredictable because the methodology for prevent such rejection was unknown. As pig is an ungulate, the same rejection issue would be reasonably expected by the art at the time of filing. The specification provides no guidance on overcoming the rejection of ungulate tissues. Thus, at the time of filing, the skilled artisan would have

needed to engage in an undue amount of experimentation without a predictable degree of success to make and use the claimed invention.

The claims are free of the prior art. At the time of filing, the prior art did not teach or suggest a method of treating a patient in need of cell or tissue transplantation comprising administering to or transplanting into said patient at least one cell or tissue obtained from a cloned ungulate animal or embryo.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Deborah Crouch, Ph.D. whose telephone number is 571-272-0727. The examiner can normally be reached on M-Fri, 7:30 AM to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ram Shukla, Ph.D. can be reached on 571-272-0735. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Deborah Crouch

Deborah Crouch, Ph.D.
Primary Examiner
Art Unit 1632

May 20, 2006